in *Nature* suggested that there might be some difficulty in understanding how a certain rate of change of momentum could produce unit change of momentum per second. It was also suggested that, while we might measure the hunger of a man under various circumstances, by determining the number of pounds of beef he would consume, we should hardly be warranted in saying that hunger "is" a certain number of pounds of beef.

We shall probably continue to measure forces with spring balances. We shall always find that the force applied to a loaded wagon is greater than the change per second in its momentum. Tait's definition might give a zero value when the spring balance might show that the horse was behaving in a very creditable way.

FRANCIS E. NIPHER

SCIENTIFIC BOOKS

The Wonders of Animal Ingenuity. By H. COUPIN, D.Sc., and JOHN LEA, M.A., author of "The Romance of Bird Life." Philadelphia, J. B. Lippincott Company. 1910. Pp. 163.

This is an American reprint of an English book of popular natural history for young people, dealing with the "wonders" of the nest-building instinct in spiders, insects, fishes, birds and mammals. The facts are gathered largely from such authorities as Huber, Moggridge, Fabre and Brehm. They are treated entirely from the traditional point of view with regard to instinct, and despite a warning in the preface against attributing "human motives and reason where they have no existence," the "little architects" are more or less humanized throughout. It would seem that a no less popularly interesting book could now be written from the more modern point of view, dwelling on the failures and variability of instinct. However, for young English readers the book would no doubt accomplish the purpose set forth in the preface, of aiding "towards a greater love of animals and a desire to observe and understand their ways." But for the American reader its value is lessened by the fact that so few of the species whose behavior is described are natives of this country. This is especially true in the case of the birds: for instance, when the ovenbird is mentioned it is the South American *Furnarius rufus* that is meant, instead of our own little warbler, the discovery of whose nest is a pleasant achievement for any amateur naturalist.

MARGARET FLOY WASHBURN

Linseed Oil and other Seed Oils. An Industrial Manual. By WILLIAM D. ENNIS, M.E., Professor of Mechanical Engineering in the Polytechnic Institute of Brooklyn. 8vo, cloth, pp. 316. Price $4.00 net. New York, D. Van Nostrand Co. 1909.

This deals minutely with the production of linseed and other expressed oils, particularly cottonseed, sunflower, peanut and rape. A glance at the table of contents shows the wide scope of the book: this is as follows: Introductory, The Handling of Seed and the Disposition of Its Impurities; Grinding; Tempering the Ground Seed and Molding the Press Cake; Pressing and Trimming the Cakes; Hydraulic Operative Equipment; The Treatment of the Oil from the Press to the Consumer; Preparation of the Cake for the Market; Oil Yield and Output; Shrinkage in Production; Cost of Production; Operation and Equipment of Typical Mills; Other Methods of Manufacturing; The Seed Crop; The Seed Trade; Chemical Characteristics of Linseed Oil; Boiled Oil; Refined and Special Oils; The Linseed Oil Market; The Feeding of Oil Cake; Miscellaneous Seed Oils; The Cottonseed Industry.

The chapters on boiled and refined and special oils and the oil market are particularly instructive and valuable. Another chapter deals with the chemical testing of the oil, many of the methods being taken from the bulletins of the U. S. Department of Agriculture, Division of Chemistry. The method for the execution of the Maumené test can not be recommended. It is an open question as to whether chemical tests should be included in a manual of this kind.

[1] *Nature*, XVI., 182, 227.

The book occupies a unique place in the chemical world—similar books have been written in metallurgy—and it is hoped it will incite others to publish similar ones. It is most excellent and can be warmly recommended to all interested in seed oils.

A. H. Gill

SCIENTIFIC JOURNALS AND ARTICLES

The Journal of Biological Chemistry, Vol. VII., No. 5, issued May 20, contains the following: "The Determination of Small Quantities of Iodine with Special Reference to the Iodine Content of the Thyroid Gland," by Andrew Hunter. A method for iodine estimation consisting in combustion with sodium and potassium carbonates and potassium nitrate; conversion of iodide to iodic acid by chlorine; liberation of iodine by potassium iodide and titration of iodine by this sulphate. Details of the method have been carefully worked out and its limits of accuracy clearly defined. "Concerning the Relative Magnitude of the Parts Played by the Proteins and by the Bicarbonates in the Maintenance of the Neutrality of the Blood," by T. Brailsford Robertson. A confirmation of Henderson's results which showed that the bicarbonates of blood are more efficient in the neutralization of acid than are the proteins. "On the Refractive Indices of Solutions of Certain Proteins," by T. Brailsford Robertson. A formula showing the relation between refractive indices of solutions of ovomucoid and their concentrations is given. The change in the refractive index of the solvent brought about by adding 1 gram of ovomucoid to 100 c.c. is 0.0016; in case of ovovitellin, 0.0013. "The Origin of the Brown Pigments in the Integuments of *Tenebrio Molitor,*" by Ross Aiken Gortner. Experiments are described which show that the pigmentation is the result of the interaction of an oxydase with a chromogen. The oxydase can be extracted from the tissue and is active only in the presence of oxygen. The chromogen is not precipitated by phosphotungstic acid; it is present only in minute amounts in the tissue at any one time. "Autolysis of Fertilized and Unfertilized Echinoderm Eggs," by E. P. Lyon and L. F. Shackell. Fertilization exercises little if any effect upon the autolysis of *Arbacia* eggs. "Studies of the Influence of Various Dietary Conditions on Physiological Resistance—I., The Influence of Different Proportions of Protein in the Food on Resistance to the Toxicity of Ricin and on Recuperation from Hemorrhage," by Nellis B. Foster, M.D. An attempt to determine in experiments upon dogs whether the vital resistance can be influenced by protein or non-protein diet. Results were indecisive.

NOTES ON METEOROLOGY AND CLIMATOLOGY

A thunder-storm observatory has recently been established in Spain by Señor G. J. de Guillen Garcia. By means of a wireless telegraph instrument, the electromagnetic waves set up by lightning discharges are detected graphically and acoustically, the changes in the intensity and the distinctness of the sounds produced in the receiver giving the observer a clue as to the probable path of the storm and the rate of its movement. After a sufficient amount of data have been obtained it is hoped that forecasts of these storms will be made possible.

The promotion of Robert DeCourcy Ward to a professorship of climatology at Harvard University probably marks an epoch in the progress of climatology in the United States, as it is the first instance of an appointment to a full professorship in which the appointee is to devote his whole time to the teaching of the science. In the closely allied field, meteorology, Harvard also has a full professorship, Professor A. Lawrence Rotch, director of the Blue Hill Observatory, having received his appointment in 1906.

While meteorological observations will receive but secondary consideration in the Mount McKinley expedition headed by Professor Herschel C. Parker, of Columbia University, they will not be neglected. Several portable instruments will be carried by the climbers, and a minimum thermometer will